

9/29/08

OK to enter.

DTD

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application	)	
No. 09/970,586	)	For: CAPACITY-EFFICIENT FLOW
	)	CONTROL MECHANISM
	)	
Peter J. Black	)	
	)	
Examiner: Duc T. Duong	)	Conf. No.: 1230
	)	
Filed: October 4, 2001	)	Art Unit: 2616

AMENDMENT

Mail Stop RCE  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Notice of Allowance and Issue Fees Due dated June 25, 2008, please amend the above-identified application as follows. An IDS is filed concurrently with this RCE, which the Examiner is respectfully requested to consider.

Amendments to the Claims are reflected in the listing of claims, which begins on page 2.

Remarks/Arguments begin on page 17.

## IN THE CLAIMS

Please amend the claims as follows:

1. (Previously Presented) In a wireless communication system, a method for controlling a data transmission between a transmission source and a receiving device, the method comprising:
  - receiving a current transmission at a current data rate for a current transmission interval;
  - detecting an average throughput for the data transmission and reflective of the current transmission;
  - comparing the detected average throughput against a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate; and
  - signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput.
2. (Original) The method of claim 1, further comprising:
  - signaling the transmission source to resume the data transmission if the threshold throughput is not exceeded.
3. (Cancelled)
4. (Cancelled)
5. (Previously Presented) The method of claim 1, further comprising characterizing the performance of the receiving device prior to first field use of the receiving device.
6. (Previously Presented) The method of claim 1, further comprising characterizing the performance of the receiving device dynamically during field use.

7. (Previously Presented) In a wireless communication system, a method for controlling a data transmission between a transmission source and a receiving device, the method comprising:

receiving a current transmission at a current data rate for a current transmission interval;

detecting an average throughput for the data transmission and reflective of the current transmission;

comparing the detected average throughput against a threshold throughput;

signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput; and

averaging a value indicative of a throughput for the current transmission with values indicative of throughputs for one or more prior transmissions in one or more prior transmission intervals, wherein the averaging is achieved with a sliding window averaging.

8. (Previously Presented) The method of claim 7, wherein the averaging is further achieved with a particular averaging scheme selected based in part on a design of a data buffer used to store samples for the data transmission.

9. (Cancelled)

10. (Cancelled)

11. (Previously Presented) In a wireless communication system, a method for controlling a data transmission between a transmission source and a receiving device, the method comprising:

receiving a current transmission at a current data rate for a current transmission interval;

detecting an average throughput for the data transmission and reflective of the current transmission;

comparing the detected average throughput against a threshold throughput; and

signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput, wherein the signaling includes sending a message

to the transmission source to request the data transmission be stopped, and wherein the message is covered by a null cover that indicates that data transmission is not requested by the receiving device.

12. (Previously Presented) The method of claim 11, wherein the message requests a transmission at zero data rate.

13. (Previously Presented) The method of claim 11, wherein the message is sent for each transmission interval in which a transmission is not requested.

14. (Previously Presented) The method of claim 7, further comprising: resetting the average throughput to an initial value prior to reception of a first transmission for the data transmission.

15. (Original) The method of claim 1, wherein the data transmission is transmitted in time division multiplexed (TDM) transmission intervals.

16. (Original) The method of claim 1, wherein the wireless communication system is an HDR CDMA system.

17. (Original) The method of claim 1, wherein the wireless communication system is a CDMA system that conforms to W-CDMA standard or cdma2000 standard.

18. (Previously Presented) The method of claim 7, further comprising: if the data transmission has been stopped and the threshold throughput is not exceeded, signaling the base station to resume the data transmission.

19. (Previously Presented) A terminal operative to receive a data transmission from a transmission source in a wireless communication system, the terminal comprising:

a receiver unit operative to receive and process a modulated signal for the data transmission to provide digitized samples;

a demodulator coupled to the receiver unit and operative to receive and process the digitized samples to provide a value indicative of a current data rate for a current transmission in a current transmission interval;

a detector coupled to the demodulator and operative to

detect an average throughput for the data transmission, wherein the average throughput is reflective of the current data rate for the current transmission,

compare the detected average throughput against a threshold throughput, and

provide a status signal indicative of a result of the comparison between the detected average throughput and the threshold throughput;

a controller coupled to the detector and operative to receive the status signal and generate a message requesting the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput; and

a transmitter unit coupled to the controller and operative to receive and transmit the message,

wherein the detector includes:

a filter operative to receive a value indicative of a throughput for the current transmission and provide the average throughput, and

a comparator coupled to the filter and operative to receive and compare the average throughput with the threshold throughput to provide the status signal.

20. (Cancelled)

21. (Previously Presented) The terminal of claim 19, wherein the filter is implemented as a finite impulse response (FIR) filter.

22. (Original) The terminal of claim 19, wherein the message conforms to a DRC message defined by an HDR CDMA system.

23. (Previously Presented) An apparatus adapted for wireless communications, comprising:

a processor configured to:

receive a current transmission at a current data rate for a current transmission interval;

detect an average throughput for a data transmission and reflective of the current transmission;

compare the detected average throughput against a threshold throughput;

signal a transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput; and

average a value indicative of a throughput for the current transmission with values indicative of throughputs for one or more prior transmissions in one or more prior transmission intervals, wherein the averaging is achieved with a sliding window averaging.

24. (Previously Presented) An apparatus adapted for wireless communications, comprising:

a processor configured to:

receive a current transmission at a current data rate for a current transmission interval;

detect an average throughput for a data transmission and reflective of the current transmission;

compare the detected average throughput against a threshold throughput; and

signal a transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput, wherein the signaling includes sending a message to the transmission source to request the data transmission be stopped, and wherein the message is covered by a null cover that indicates that data transmission is not requested by a receiving device.

25. (Previously Presented) The method of claim 1, wherein the threshold throughput is set lower than the maximum supported average data rate to account for signaling delay.

26. (Previously Presented) The method of claim 1, further comprising:

signaling the transmission source to transmit at a lower data rate that does not cause the average throughput to exceed the threshold throughput, instead of stopping the data transmission, if the detected average throughput exceeds the threshold throughput.

27. (Previously Presented) An apparatus adapted for wireless communications, comprising:

a processor configured to:

receive a current transmission at a current data rate for a current transmission interval;

detect an average throughput for a data transmission and reflective of the current transmission;

compare the detected average throughput against a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate; and

signal a transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput.

28. (Previously Presented) An apparatus for controlling a data transmission between a transmission source and a receiving device in a wireless communication system, the apparatus comprising:

means for receiving a current transmission at a current data rate for a current transmission interval;

means for detecting an average throughput for the data transmission and reflective of the current transmission;

means for comparing the detected average throughput against a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate; and

means for signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput.

29. (Previously Presented) The apparatus of claim 28, further comprising:

means for signaling the transmission source to resume the data transmission if the threshold throughput is not exceeded.

30. (Previously Presented) The apparatus of claim 28, further comprising:  
means for averaging a value indicative of a throughput for the current transmission with  
values indicative of throughputs for one or more prior transmissions in one or more prior  
transmission intervals.

31. (Previously Presented) The apparatus of claim 28, further comprising:  
means for covering a message with a null cover to indicate that data transmission is not  
requested by the receiving device; and  
means for sending the message to the transmission source to request the data transmission  
be stopped.

32. (Previously Presented) The apparatus of claim 28, further comprising:  
means for generating a message requesting a transmission at zero data rate; and  
means for sending the message to the transmission source to request the data transmission  
be stopped.

33. (Previously Presented) The apparatus of claim 28, further comprising:  
means for signaling the transmission source to transmit at a lower data rate that does not  
cause the average throughput to exceed the threshold throughput, instead of stopping the data  
transmission, if the detected average throughput exceeds the threshold throughput.

34. (Previously Amended) An apparatus for receiving a data transmission from a  
transmission source in a wireless communication system, the apparatus comprising:  
a detector operative to receive a value indicative of a current data rate for a current  
transmission in a current transmission interval, to detect an average throughput for the data  
transmission and reflective of the current transmission, to compare the detected average  
throughput against a threshold throughput, wherein the threshold throughput is based on a  
maximum supported average data rate, and to provide a status signal indicative of a result of the  
comparison between the detected average throughput and the threshold throughput; and

a controller coupled to the detector and operative to receive the status signal and to signal the transmission source to stop the data transmission if the status signal indicates that the detected average throughput exceeds the threshold throughput.

35. (Previously Presented) The apparatus of claim 34, wherein the controller is operative

to signal the transmission source to resume the data transmission if the threshold throughput is not exceeded.

36. (Previously Presented) The apparatus of claim 34, wherein the detector is operative

to average a value indicative of a throughput for the current transmission with values indicative of throughputs for one or more prior transmissions in one or more prior transmission intervals.

37. (Previously Presented) The apparatus of claim 34, wherein the controller is operative

to cover a message with a null cover to indicate that data transmission is not requested, and

to send the message to the transmission source to request the data transmission be stopped.

38. (Previously Presented) The apparatus of claim 34, wherein the controller is operative

to generate a message requesting a transmission at zero data rate; and

to send the message to the transmission source to request the data transmission be stopped.

39. (Previously Presented) The apparatus of claim 34, wherein the controller is operative

to signal the transmission source to transmit at a lower data rate that does not cause the average throughput to exceed the threshold throughput, instead of stopping the data transmission, if the detected average throughput exceeds the threshold throughput.

40. (Previously Presented) A method for sending a data transmission to a receiving device in a wireless communication system, the method comprising:

receiving data to send to the receiving device;

entering a wait state if the data transmission to the receiving device has been stopped based on signaling sent by the receiving device when a detected average throughput at the receiving device exceeds a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate for the receiving device; and

sending the data to the receiving device if the data transmission has not been stopped or upon exiting the wait state when the data transmission is resumed.

41. (Previously Presented) The method of claim 40, wherein the entering the wait state comprises

entering the wait state in response to receiving a message covered with a null cover from the receiving device.

42. (Previously Presented) The method of claim 40, wherein the entering the wait state comprises

entering the wait state in response to receiving a message requesting a transmission at zero data rate from the receiving device.

43. (Previously Presented) The method of claim 40, further comprising:

exiting the wait state in response to receiving signaling sent by the receiving device to resume the data transmission when the threshold throughput is not exceeded at the receiving device.

44. (Previously Presented) The method of claim 40, further comprising:

sending the data at a lower data rate that does not cause the average throughput to exceed the threshold throughput at the receiving device, instead of entering the wait state, if signaling indicating that the detected average throughput exceeded the threshold throughput is received from the receiving device.

45. (Previously Presented) An apparatus for sending a data transmission to a receiving device in a wireless communication system, the apparatus comprising:

means for receiving data to send to the receiving device;

means for entering a wait state if the data transmission to the receiving device has been stopped based on signaling sent by the receiving device when a detected average throughput at the receiving device exceeds a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate for the receiving device; and

means for sending the data to the receiving device if the data transmission has not been stopped or upon exiting the wait state when the data transmission is resumed.

46. (Previously Presented) The apparatus of claim 45, wherein the means for entering the wait state comprises

means for entering the wait state in response to receiving a message covered with a null cover from the receiving device.

47. (Previously Presented) The apparatus of claim 45, wherein the means for entering the wait state comprises

means for entering the wait state in response to receiving a message requesting a transmission at zero data rate from the receiving device.

48. (Previously Presented) The apparatus of claim 45, further comprising:

means for exiting the wait state in response to receiving signaling sent by the receiving device to resume the data transmission when the threshold throughput is not exceeded at the receiving device.

49. (Previously Presented) The apparatus of claim 45, further comprising:  
means for sending the data at a lower data rate that does not cause the average throughput to exceed the threshold throughput at the receiving device, instead of entering the wait state, if signaling indicating that the detected average throughput exceeded the threshold throughput is received from the receiving device.

50. (Previously Presented) An apparatus for sending a data transmission to a receiving device in a wireless communication system, the apparatus comprising:  
a data queue operative to receive data to send to the receiving device; and  
a scheduler operative to enter a wait state if the data transmission to the receiving device has been stopped based on signaling sent by the receiving device when a detected average throughput at the receiving device exceeds a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate for the receiving device, and to send the data to the receiving device if the data transmission has not been stopped or upon exiting the wait state when the data transmission is resumed.

51. (Previously Presented) The apparatus of claim 50, wherein the scheduler is operative to enter the wait state in response to receiving a message covered with a null cover from the receiving device.

52. (Previously Presented) The apparatus of claim 50, wherein the scheduler is operative to enter the wait state in response to receiving a message requesting a transmission at zero data rate from the receiving device.

53. (Previously Presented) The apparatus of claim 50, wherein the scheduler is operative to exit the wait state in response to receiving signaling sent by the receiving device to resume the data transmission when the threshold throughput is not exceeded at the receiving device.

54. (Previously Presented) The apparatus of claim 50, wherein the scheduler is operative to send the data at a lower data rate that does not cause the average throughput to exceed the threshold throughput at the receiving device, instead of entering the wait state, if signaling indicating that the detected average throughput exceeded the threshold throughput is received from the receiving device.

55. (Previously Presented) An apparatus adapted for wireless communications, comprising:

a processor configured to:

receive data to send to a receiving device;

enter a wait state if a data transmission to the receiving device has been stopped based on signaling sent by the receiving device when a detected average throughput at the receiving device exceeds a threshold throughput, wherein the threshold throughput is based on a maximum supported average data rate for the receiving device; and

send the data to the receiving device if the data transmission has not been stopped or upon exiting the wait state when the data transmission is resumed.

56. (New) An apparatus for controlling a data transmission between a transmission source and a receiving device in a wireless communication system, the apparatus comprising:

means for receiving a current transmission at a current data rate for a current transmission interval;

means for detecting an average throughput for the data transmission and reflective of the current transmission;

means for comparing the detected average throughput against a threshold throughput;

means for signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput; and

means for averaging a value indicative of a throughput for the current transmission with values indicative of throughputs for one or more prior transmissions in one or more prior transmission intervals, wherein the averaging is achieved with a sliding window averaging.

57. (New) The apparatus of claim 56, wherein the means for averaging is based in part on a design of a data buffer used to store samples for the data transmission.

58. (New) The apparatus of claim 56, further comprising means for resetting the average throughput to an initial value prior to reception of a first transmission for the data transmission.

59. (New) The apparatus of claim 56, wherein the means for signaling includes signaling the base station to resume the data transmission when the data transmission has been stopped and the threshold throughput is not exceeded.

60. (New) An apparatus for receiving a data transmission from a transmission source in a wireless communication system, the apparatus comprising:

a detector operative

to receive a value indicative of a current data rate for a current transmission in a current transmission interval,

to detect an average throughput for the data transmission and reflective of the current transmission,

to compare the detected average throughput against a threshold throughput,

to provide a status signal indicative of a result of the comparison between the detected average throughput and the threshold throughput, and

to average a value indicative of a throughput for the current transmission with values indicative of throughputs for one or more prior transmissions in one or more prior transmission intervals, wherein the averaging is achieved with a sliding window averaging; and

a controller coupled to the detector and operative to receive the status signal and to signal the transmission source to stop the data transmission if the status signal indicates that the detected average throughput exceeds the threshold throughput.

61. (New) An apparatus for controlling a data transmission between a transmission source and a receiving device in a wireless communication system, the apparatus comprising:

means for receiving a current transmission at a current data rate for a current transmission interval;

means for detecting an average throughput for the data transmission and reflective of the current transmission;

means for comparing the detected average throughput against a threshold throughput; and

means for signaling the transmission source to stop the data transmission if the detected average throughput exceeds the threshold throughput, wherein the signaling includes sending a message to the transmission source to request the data transmission be stopped, and wherein the message is covered by a null cover that indicates that data transmission is not requested by the receiving device.

62. (New) The apparatus of claim 61, wherein the message requests a transmission at zero data rate.

63. (New) The method of claim 61, wherein the message is sent for each transmission interval in which a transmission is not requested.

64. (New) An apparatus for receiving a data transmission from a transmission source in a wireless communication system, the apparatus comprising:

a detector operative

to receive a value indicative of a current data rate for a current transmission in a current transmission interval,

to detect an average throughput for the data transmission and reflective of the current transmission,

to compare the detected average throughput against a threshold throughput, and

to provide a status signal indicative of a result of the comparison between the detected average throughput and the threshold throughput; and

a controller coupled to the detector and operative to receive the status signal and to signal the transmission source to stop the data transmission if the status signal indicates that the

detected average throughput exceeds the threshold throughput, wherein the signal includes a message that is covered by a null cover that indicates that data transmission is not requested.

## REMARKS

Applicants express their appreciation for allowance of claims 1, 2, 5-8, 11-19 and 21-54, per the Notice of Allowance and Fees Due dated June 25, 2008 (referred to hereinafter as "the Notice of Allowance").

Upon entry of this amendment, claims 1, 2, 5-8, 11-19 and 21-64 will be pending. By this amendment, claims 56-64 have been added. No new matter has been added.

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

New Claims 56-64

Claims 56-64 are newly presented by this amendment. Claims 56, 60, 61, and 64 are independent claims which parallel one of allowed claims 7 and 11, and recite similar limitations as recited therein. Therefore, based on the allowance of claims 7 and 11, claims 56, 60, 61, and 64 should also be allowable. Further, since claims 57-59 depend from claim 56, and claims 62 and 63 depend from claim 61, claims 57-59, 62, and 63 should also be allowable.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicant submits that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of this application are earnestly solicited. Should any issues remain unresolved, the Examiner is cordially invited to contact the undersigned at the telephone number provided below.

Respectfully submitted,

Dated: 09/25/2008

By: \_\_\_\_\_



Charles E. Eggars, Reg. No. 56,343  
(858) 658-1639

QUALCOMM Incorporated  
5775 Morehouse Drive  
San Diego, California 92121  
Telephone: (858) 651-5527  
Facsimile: (858) 658-2502